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GENERAL STUDIES (TEST CODE : 1244)

Name of Candidate	Avadh singhal		
Medium Eng./Hindi	English	Registration Number	139489
Center	Online	Date	01/09/2019

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
11	15	
12	15	
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14	15	
15	15	
16	15	
17	15	
18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar Delhi- 110009

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. Discuss the need of an Independent Fiscal Council (IFC) in bringing about transparency and accountability in fiscal processes in India. **(150 words) 10**

भारत में राजकोषीय प्रक्रियाओं में पारदर्शिता और जवाबदेही का समावेश करने हेतु एक स्वतंत्र राजकोषीय परिषद (IFC) की आवश्यकता की चर्चा कीजिए।

NK Singh Committe in 2016 proposed constitution of an independent fiscal council for monitoring and guiding prudent fiscal management in India.

Need of IFC in Transparency

(1) CAG report shows government has given wrong budgetry estimates in 10+/20 years

(2) Increasing use of creative accounting methods to manage fiscal deficit
→ harmful for long term sustainability

(3) Recent controversy of RBI's reserve shifting raises question on long sustainability and independent functioning of institutions.

(4) Current assesment is by government itself - hence potential conflict of interest

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Need of IFC in accountability

(5) FRBM Act 2003 has been ammended multiple times to refute targets of fiscal deficit
↳ IFC can monitor performance during the year.

(6) States have seen increasing Debt to GDP ratio thus close monitoring to hold states accountable

(7) Poor fiscal performance lead to bond rating decrease affecting investments

(8) Concerns around inter-generational parity. IFC can be torch bearer of future generations.

IMF has recognized IFC as key enabler in ensuring prudent fiscal management, hence need arise for instituting IFC

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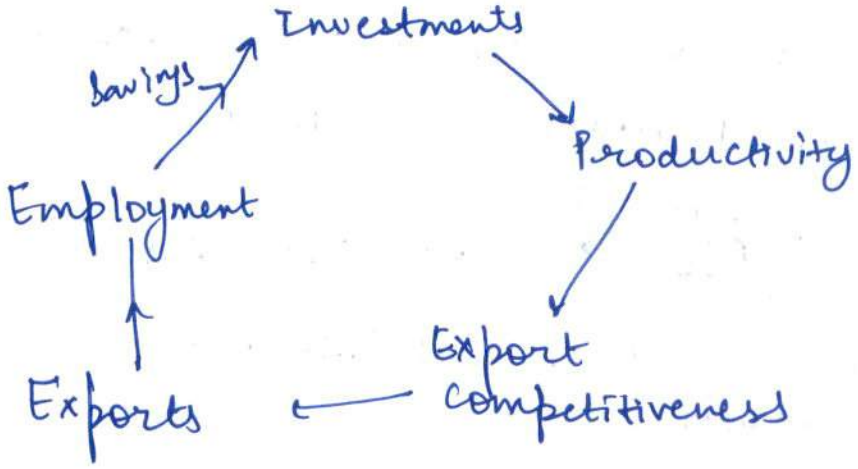
2. Recognizing the potential of exports in generating employment, a number of steps need to be taken to address India's weakening export competitiveness. Analyze. **(150 words) 10**

रोजगार सृजन हेतु निर्यात क्षेत्र की क्षमताओं की पहचान करते हुए, भारत की कमजोर होती निर्यात प्रतिस्पर्धा को संबोधित करने हेतु कई कदम उठाए जाने की आवश्यकता है। विश्लेषण कीजिए।

Recently, Economic survey called for creating a virtuous cycle of growth driven by savings, investments and exports to achieve $5 Tr economy dream

Role of exports in employment

(1)



Concerns regarding export competitiveness

(1) Middle income trap ($1000-12000) per capita

(2) Wages increase → Consistent increase seen.

→ Innovation & Quality doesn't → WIPO - 52 rank

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(2) Tariff barriers (eg) withdrawal of GSP by US.

(3) Deglobalization (eg) Shifting of bases to home countries

(4) Decline in merchandise trade

Steps to be taken

(1) R&D expenditure → 3% of GDP (Eco Survey 2017-18) to increase quality

(2) Multi-lateralism and WTO forum to fight against barriers.

(3) FTE (contract) for sectors like textile where extreme competition by others (Bangladesh)

(4) Managing input costs (eg. oil) to prevent impact on exports.

India needs to take multiple techno-economic and diplomatic steps to ensure export competitiveness of its products.

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3. Highlighting the main features of National Mineral Policy, 2019, discuss how it can help in ensuring sustainable and responsible mining. **(150 words) 10**

राष्ट्रीय खनिज नीति, 2019 की मुख्य विशेषताओं पर प्रकाश डालते हुए, चर्चा कीजिए कि यह संधारणीय और उत्तरदायित्वपूर्ण खनन सुनिश्चित करने में कैसे सहायता कर सकती है।

Recently government released National Mineral policy (NMP) 2019 on recommendation of K. Rajeshwar Rao Committe.

Private sector participation

1. Rationalization levies, Royalties
2. Dereserving PSU lands.
3. Long term policy on exploration

Sector development

4. Mineral corridors
5. Industry status.

Key features

Sustainability

6. Concept of intergenerational parity
7. Utilization norms on District Mining funds
8. Environment friendly operations.

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Positives that address sustainability/ responsible mining

1. Focus on mindful use for future generations
2. Inter-ministerial coordination for sustainable development.
3. DMF for welfare of locals.

Gaps that remain

1. Limited focus on tribal rights
2. Doesn't address the upstream (steel) & downstream industry pollution concerns and concerns like child labor
3. Silent on role of civic bodies

NMP 2019 is right step for mining sector as India imports 90% of its demands but better inclusivity must be ensured in its implementation.

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4. Highlighting the salient features of the PM JI-VAN Yojana, analyze how it can assist in achieving the vision and goals of the National Policy on Biofuels, 2018. **(150 words) 10**

"प्रधानमंत्री जी-वन योजना" की मुख्य विशेषताओं पर प्रकाश डालते हुए, विश्लेषण कीजिए कि यह जैव ईंधन राष्ट्रीय नीति, 2018 की दृष्टि और लक्ष्यों को प्राप्त करने में किस प्रकार सहायक हो सकती है।

PM JIVAN Yojana aims to promote 2G biofuels to create a streamlined ecosystem and value chain

Salient features of scheme

1. Financial support for 10 commercial and 10 demonstration of 2G biofuel projects (2G → non-food crops, lignite material)

2. 10% norm adherence by oil marketing companies on mixing ethanol + Diesel

3. Developing local capability and value chain for self-sustainance

4. Viability fund gap for providing support.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Role in achieving Biodiesel policy vision

→ Enable transition to 10% biodiesel by 2020

→ Helps reduce the oil imports by building sustainable and low cost alternatives

→ Enable transition to low emission economy.

→ Further development towards 3G, 4G to reduce pressure on 1G supply side issues.

As it is said, "We do not inherit earth from our ancestors but borrow it from our children". Biodiesel and PM-JIVAN gives new life to the famous quote.

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5. Zero Budget Natural Farming (ZBNF) provides an alternative to capital and chemical intensive agriculture currently being practiced in India. Analyze. **(150 words) 10**

जीरो बजट प्राकृतिक कृषि (ZBNF), भारत में वर्तमान समय में प्रचलित पूंजी और रसायन गहन कृषि का एक विकल्प प्रदान करती है। विश्लेषण कीजिए।

Finance Minister in her budget speech 2019-20 asked for nation to adopt Zero Budget Natural farming thus bring-ing the indegenous technique practised in states like AP, HP into focus.

Concept

ZBNF refers to utilization of minim-um resources (thus zerobudget) and relying on natural methods to improve farming.

Alternative to capital intensive agricultu

① Requires farmer to use natural ecosystem approach using old techniques thus reducing need for capital in form (tractors, harvesting) etc.

② Farmers are also advised to use

~~use~~

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Zero tillage farming thus reducing winnowing and ploughing efforts

Alternative to chemicals

(3) Eco survey observes reduction in fertilizer response ratio thus rendering a need for alternative.

(4) ZBNF calls for organic farming using natural insecticides, manures and pest management systems.

(5) Also calls for water efficient techniques and crops suited to geo-climatic conditions

"ZBNF truly resonates with idea of "back to roots" but implementation requires provision of extension services for its success

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6. Marine life is facing 'irreparable damage' from the millions of tonnes of plastic waste which ends up in the oceans each year. In this context, examine the implications of plastic pollution on marine ecosystem and suggest some measures for addressing this problem. **(150 words) 10**

समुद्री जीवन, प्रति वर्ष समुद्र में पहुँचने वाले लाखों टन प्लास्टिक कचरे के कारण 'अपूरणीय क्षति' का सामना कर रहा है। इस संदर्भ में, समुद्री पारिस्थितिकी तंत्र पर प्लास्टिक प्रदूषण के प्रभाव का परीक्षण कीजिए और इस समस्या के समाधान हेतु कुछ उपाय सुझाइये।

As per scientific estimates each year ~13 Mn tonne plastic ends up in earth's oceans.

Implications on marine ecosystem

(1) Destruction of key biodiversity hotspots like corals by preventing sunlight etc.

(2) Under presence of UV lights break into microplastics (<5mm) becoming permanent part of food chain
↳ Also harming humans in long run

(3) Plastics on pseudo-degradation produce toxins harming lifeforms in marine ecosystem.

(4) Circulates as part of global gyres. inhibiting natural flow of animals

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Steps to address the problem

① Global action :- Expanding the UNFCCC framework or taking it up under CBD

② Waste management efficiency : Not dumping wastes of coastal cities and strict on-shore monitoring to prevent pollution by fishermen & sailor.

③ Awareness and campaigns

↳ #Clean Sea campaign to be expanded
↳ Famous names to be associated
↳ Using school circullum to create awareness.

70% of earth is water and it thus becomes key to prevent oceans to prevent global biodiversity balance.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

7. Write a short note on the evolution of Bharat Stage norms in India. Also discuss the significance and challenges posed by the planned introduction of BS-VI norms in India from the year 2020. **(150 words) 10**

भारत में भारत स्टेज मानकों के विकास पर एक संक्षिप्त टिप्पणी लिखिए। साथ ही, वर्ष 2020 से भारत में BS-VI मानकों को योजनाबद्ध रूप से लागू किए जाने के महत्व और उसमें आने वाली चुनौतियों की भी चर्चा कीजिए।

Bharat Stage (BS) norms refers to emission threshold fixed for autom-otives manufacturers that lead to reduced pollution and global warming.

Evolution

India adopted norms from EU

BS-I → BS-IV → BS VI

BS-I ↓ first

BS-IV ↓ current

BS VI ↓ 2019 - Delhi NCR

2020 - All over India

Skipping / leapfroging BS-V

Focus on CO, HC_x, sulphur et al.

Significance

① Air pollution cause loss of 10% of GDP (world Bank).

② Transport sector is key polluter (second after industrial)

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(3) BS norms propel for better fuel efficiency hence also reduced oil consumption

- Reduced oil imports → Help CAD
- Reduced fuel price → Savings for consumer in long run

Challenges posed by BS VI norms

(1) Automotive Industry in slowdown and BS VI would lead to higher price thus lower demand

(2) OEMs are not ready with technology

(3) Implementation monitoring capacity in government institutes

Government needs to consult OEMs and regulators like SIAM to chalk out a potential solution.

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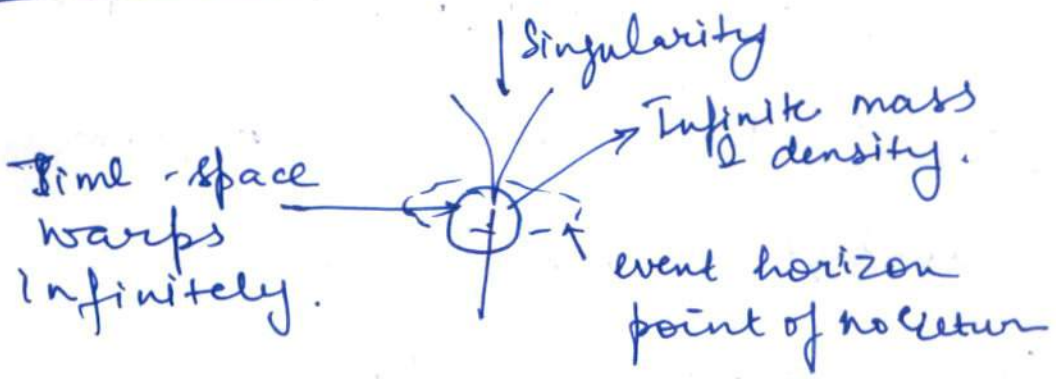
8. What are black holes? Highlight the challenges in imaging a black hole? How were these challenges overcome by the Event Horizon Telescope project? **(150 words) 10**

ब्लैक होल क्या हैं? ब्लैक होल के चित्रण (इमेजिंग) में आने वाली चुनौतियों पर प्रकाश डालिए। इवेंट होराइज़न टेलीस्कोप प्रोजेक्ट द्वारा इन चुनौतियों को कैसे दूर किया गया?

Recently a team of scientists released first ever picture of photon ring of a blackhole 55 Mn light year away in Meissur galaxy.

Black holes - concept



Challenges in Imaging blackhole

(1) Due to its infinite mass nothing not even light can't escape its gravitation pull.

(2) Regular telescopes don't have sufficient resolution power to capture faint radiations of

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last photon ring revolving around

How challenges overcome

(3) Creation of a pseudo earth size telescope by using 7-8 telescopes spread across continents using technique of parallax

(4) Using computational intensity imaging to process data from multiple telescope into one single image of nothingness

Black holes were first propounded by Einstein 100 years before their actual discovery. It shows the greatness of the brilliant mind that once walked the surface of earth

Don't write anything this margin (इस भाग में कुछ ना लिखें)

9. While mentioning the objectives of the Arms Trade Treaty (ATT), discuss the challenges which are hindering the utilization of the ATT to its full potential. **(150 words) 10**

शस्त्र व्यापार संधि (ATT) के उद्देश्यों का उल्लेख करते हुए, उन चुनौतियों की चर्चा कीजिए जो ATT को इसकी पूर्ण क्षमता से उपयोगित किये जाने में बाधक हैं।

Arms trades treaty is a multilateral inter-government treaty to streamline global arms trade

Objectives

(1) Reduced sale of weapons of mass destruction.

(2) Reduced costs for nations who can't afford.

(3) Lowering the weapon / war threshold

(4) Sharing of technology to promote inclusivity.

(5) Rules based trade

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Challenges

Sovereignity Concerns

→ Treaty places restricts on that harms India's sovereignity

→ Forces one to pick side against NAM

Trade Wars

→ China - US

→ US - Russia

→ India - Pakistan

or cold.

Ethical issues

→ Limited focus on rights of victims

→ Penalties on agressor.

As Martin Luther has said "Our ~~spiritual~~ scientific power has overpowered our spiritual power, we have guided missiles and misguided men" stands true in the above context.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

10. Threats to internal security of India may be posed both through the communication networks and also to the networks. Discuss. Also, highlight the steps taken by the government in making the networks more secure.
(150 words) 10

भारत की आंतरिक सुरक्षा को खतरा संचार नेटवर्कों के माध्यम से एवं स्वयं संचार नेटवर्कों को खतरा होने, दोनों ही प्रकार से हो सकता है। चर्चा कीजिए। साथ ही, नेटवर्कों को अधिक सुरक्षित बनाने हेतु सरकार द्वारा उठाए गए कदमों पर प्रकाश डालिए।

Communication networks remain lifeline of any country in the era of IT revolution. CERT in highlight India faces 1 cyber attack every 10 mins.

Threat through network

(1) Using internet for terror propaganda, hate crime (eg) ISIS, Christchurch attack video.

(2) Release of virus / malfunctions that can stop the entire communication network

(3) Spread on apps like Blue whale that harm children and have potential to disrupt social life.

(4) Research ~~on~~ shows potential tapping of key confidential calls. that harm internal security.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Threat to network

(5) Attack on BSE systems showed the vulnerability that brough financial market to stand still.

(6) Attacks like US - Iran cyber feud shows the vulnerability ~~of~~ networks like telecom, power, and anything that can be tapped by external powers

Steps taken by government

→ National Cyber Crime Coordination Centre to spear head the effort in case of attack

→ Bharat Cyber Suraksha Abhiyan

→ Special cell in MHA.

Communication networks remain key in the era of IR-4.0 thus, government must ensure that security efforts are expedited.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

11. Highlight the importance and challenges related to integration of Variable Renewable Energy (VRE) in India. Mention some steps that can be taken for its smooth integration with the synchronized Indian grid. **(250 words) 15**

भारत में परिवर्तनीय नवीकरणीय ऊर्जा (VRE) के एकीकरण के महत्व और इससे संबंधित चुनौतियों पर प्रकाश डालिए। ऐसे कुछ कदमों का उल्लेख कीजिए जो समक्रमिक (सिंक्रनाइज्ड) भारतीय ग्रिड के साथ इसके सहज एकीकरण के लिए उठाए जा सकते हैं।

Variable renewable Energy (VRE) refers to those sources of energy whose source supply is not in human control. This includes key new age energies such as solar, wind.

Importance of VRE & integration.

(1) Solar and wind are key alternative to global warming causing fossil emission.

(2) ~~lock~~ Integration makes possible to adopt VRE on large scale

(3) India has many areas like Thar, Kutchh, Marathwada where VRE stand as key and at times only source of energy. India still has 20% living in electricity poverty

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(4) Achieving goal of 100GW solar and 60GW wind will be get significant impetus by integration

(5) Grid capacity will balance

Challenges in integration	Steps that can be taken
(1) Old technology of thermal plants render them ineffective as for flexible ramp up/ ramp down.	a) Phasing out old plants or retrofitting - Chinese example can be a good case study
(2) VRE availability away from habitat thus grid availability itself is challenge. (eg) Thar, Oceanic wind (off shore)	b) Long length, low heat losing materials like Cu-Al alloy for better integration
(3) Lack of institutional framework	c) Making VRE integration part of electricity amendment bill.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

hampers the industry action

(4) Low investments by private sector due to lack of policy clarity and govt. initiatives/ incentives.

(5) Demand side gaps due to higher costs of VRE.

making it compulsory for thermal to provide for back of VRE

d) NITI Aayog can spearhead the discussion to arrive at right incentivization tool.

(6) Viability fund gaps to push the demand

VRE integration is a key link in achieving the 40% INDC commitment of renewable energy. Hence necessary steps as discussed must be taken on priority.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

12. There have been arguments that India could fall into a 'middle income trap'. Explaining the phenomenon, highlight the reasons behind such arguments. How can India avoid it? **(250 words) 15**

ऐसे तर्क दिए गए हैं कि भारत 'मध्यम आय पाश' में फंस सकता है। इस परिघटना की व्याख्या करते हुए, ऐसे तर्कों के लिए उत्तरदायी कारणों पर प्रकाश डालिए। भारत इससे किस प्रकार बच सकता है?

Middle Income trap (MIT) refers to phenomenon of a countries income per capita stuck between $1000 - 12000 and further growth is impeded due to losing of export competitiveness etc.

Arguments for India falling

(1) MIT happens due to failure of shift from resource driven to innovation driven economy.

Reason behind such arguments

(1.1) WIPO index shows India @ 52 rank

(1.2) India has only 2.3% technically trained laborforce (NSSO '12)

(1.3) R n D expenditure of 0.7% V/s global benchmark of 2-3%.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(2) High inequalities drive down consumption demand

(2.1) As per Oxfam 1% Indians have 73% of wealth.

(2.2) Piketty theory suggest ~~bridge~~ gap increase unless rate of return on capital (~15%) is lower than GDP growth rate (8%)

(3) Exports decline
→ Competitiveness loss
→ Hyperglobalization & Deglobalization

(3.1) Decline in Exports % GDP (Eco Survey 2019)

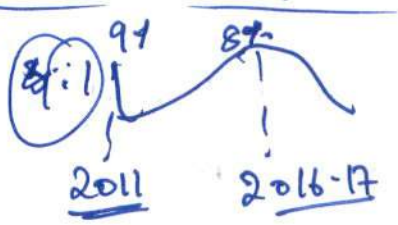
(3.2) US-China wary and destabilized global trade

(3.3) US - GSP revocation.

(3.4) Trade globally slowing down

(4) Cycles of boom and bust.
but it needs 50 yrs of continuous growth.

(4.1)



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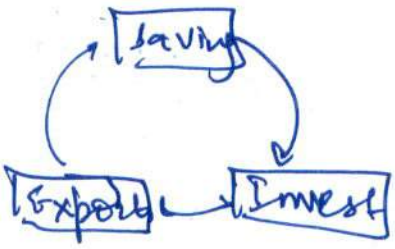
Steps for India to avoid it

(1) Innovation led growth. → R&D expenditure 3% of GDP (EO survey 2017-18)

(2) Virtous cycle of growth → To sustain long duration growth without booms & busts.



(3) Focus on middle income group to drive consumption → skilling → Employment → Digital to enhance trade etc

(4) Reducing inequalities by progressive taxation.

India on its growth dream of $5 Tr economy definitely needs to overcome MIT challenge

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. Highlighting its importance, discuss the major issues that plague effective monetary policy transmission in India. Also, mention the steps taken by RBI to improve it. **(250 words) 15**

भारत में मौद्रिक नीति संचरण के महत्व पर प्रकाश डालते हुए, उन प्रमुख मुद्दों पर चर्चा कीजिए जो इसकी प्रभाविता को बाधित करते हैं। साथ ही, इसमें सुधार के लिए RBI द्वारा उठाए गए कदमों का उल्लेख कीजिए।

Monetary policy is a macro-economic policy tool used generally by central bank of a country to manage liquidity in fi market. Recently, RBI governor highlighted for every 1% decrease in policy (repo) rate, transmission is mere 0.29% thus highlighting its non-transmission

Importance

(1) Tool for controlling the inflation hence monetary policy transmission (MPT) key for consumer interest.

(2) MPT effectiveness key for effective economic operations under control of RBI to

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(3) MPT ensures access to credit to market at reasonable rates key for growth goals.

(4) It has bearing on financial and capital market stability as well

Issues plaguing MPT

(1) Janak Rai Committee observes MCLR system ineffective to hold banks accountable.

(2) Low deposite rate → high savings in assets like gold

(3) Cannabalization of profits hence low scale and thus high servicing cost.

(4) Parallel economy : as per parliamentary committee report on black money it varies from 17% to 120% of GDP

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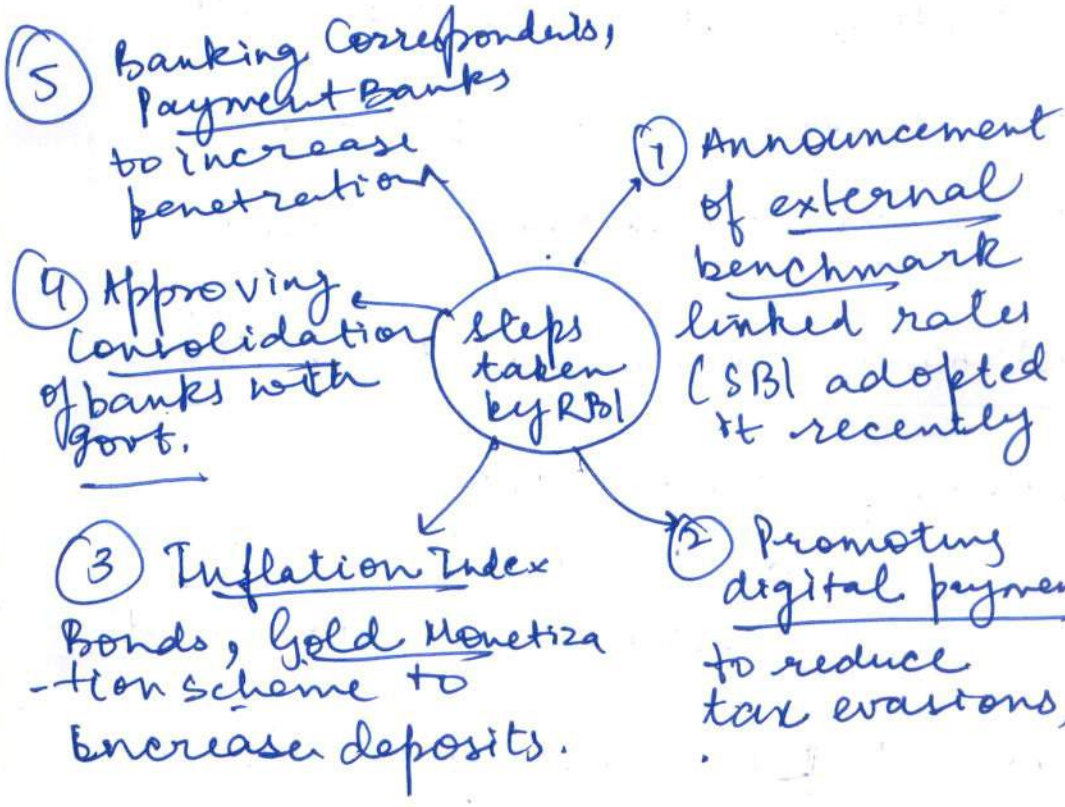
(5) Unbanked population : As per World Bank 14% population is unbanked in India and rely on unregulated sources.



A lot of steps have been taken but there needs a close and expedient effort to tackle the issue of non-transmission of monetary policy

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14. Highlight the constraints faced by rainfed agriculture in India. Discuss some agronomic practices that can be adopted for stabilizing agricultural production in rainfed areas. **(250 words) 15**

भारत में वर्षा सिंचित कृषि में आने वाली बाधाओं पर प्रकाश डालिए। वर्षा सिंचित क्षेत्रों में कृषि उत्पादन को स्थायित्व प्रदान करने हेतु अपनाई जा सकने वाली कुछ कृषि-वैज्ञानिक पद्धतियों की चर्चा कीजिए।

Recently Revitalizing Rainfed Network released Rainfed Agriculture Atlas (RA) highlighting that ~60% of India's farmers are deriving water for crops from monsoonal rains

Constraints faced by RA in India

(1) Lower productivity.
↳ 1.1tn/ha (Rainfed) v/s 2.5tn/ha (irrigated)

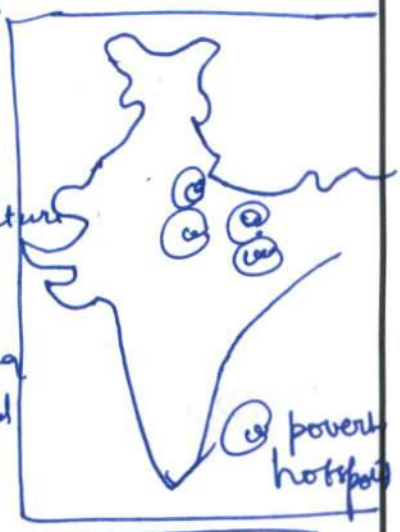
(2) Lack of RA capacity to support needs of farmers thus increasing burden for side income.
(eg) only 20-30% income from crops.

(3) Lack of government investments in rainfed areas further hamper

Don't write anything this margin (इस भाग में कुछ ना लिखें)

growth prospects
Ls 5lakh/ha (irrigated) v/s 25000/ha (Rainfed)

(4) High coincidence of poverty makes agriculture unsustainable thus people taking up-jobs as laborers



(5) Government bias against rainfed agriculture
→ 90% procurement of wheat for PDS from Punjab, Haryana, West UP (Rely irrigated states.

Agronomic practices for stability

(1) Crops as per the conditions of state/area
(eg) Maharashtra not being suitable for water intensive sugarcane, thus adopting less intensive crops

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(2) Using local knowledge for enhancing productivity and planning

(eg) Use of Zero budget Natural farming.

(3) Varying the practices as per topography

(eg) Terrace farming in hills.

(4) Government economic policy focus on local needs avoiding one size fit all approach

(5) Growing GM crops that need less input (eg) GM sugarcane in Indonesia

50% farmers of country are in as much need of attention as others in spirit of Article 14 of Indian constitution. Thus efforts for equality are needed.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. Despite the steps taken by the government in recent years, a number of problems continue to persist in the urea sector in India. Discuss. What reforms should be taken to address the persisting problems? **(250 words) 15**

हाल के वर्षों में सरकार द्वारा उठाए गए कदमों के बावजूद, भारत में यूरिया क्षेत्र में कई समस्याएं निरंतर बनी हुई हैं। चर्चा कीजिए। मौजूदा समस्याओं के समाधान हेतु क्या सुधार किए जाने चाहिए?

Urea sector is a key chemical and fertilizer sector of India directly affecting ~50% population involved in agriculture.

Steps by government

(1) Guidlines on emission norms by factories

(2) Equitable distribution to markets. - Area wise norms

(3) National Urea policy is providing framework for comprehensive development.

(4) Neem coated urea for sustainable agriculture

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Key problems	Reforms needed
(1) Skewed NPK ratio from 4:2:1 to 8:3:1	a) Adopting Soil health Card, zero budget Natural farming
(2) Urea subsidy benifiting manufacturers (30% to manuf.)	b) DBT to farmers, this will also reduce its usage.
(3) Environmental pollution both in process of manufacturing and their application (CSE survey found that ~75% disposed waste untreated in water bodies)	c) strict compliance MoEFCC to make a task force for action.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(4) Leakage of urea subsidies. (~30-40% as per Shanta Kumar committee)

(5) High cost of servicing

(6) Poor linkage with Naptha / Petro industry hampers growth

(7) Lack of strong exports channel to tap African, West Asian markets

d) DBT and social audits can help.

e) Efficient technologies (IISC / ICAR) to support (Vedanta, etc)

f) Industry - NITI Aayog collaboration to come up with plan.

e) Using soft power channel like ITEC to promote Indian urea

Urea remains key link still to double farmer income hence needs for reforms are urgent.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. What is Access and Benefit Sharing? Explain how it aids in sustainable use of biodiversity. Also, mention the different global and national level mechanisms for ensuring Access and Benefit Sharing. **(250 words) 15**

पहुंच और लाभ साझाकरण (एक्सेस एंड बेनिफिट शेयरिंग) क्या है? यह जैव विविधता के संधारणीय उपयोग में किस प्रकार सहायक है, स्पष्ट कीजिए। साथ ही, पहुंच और लाभ साझाकरण सुनिश्चित करने हेतु वैश्विक और राष्ट्रीय स्तर की विभिन्न प्रणालियों का उल्लेख कीजिए।

Access and Benefit sharing is a key principle under Nagoya protocol under CBD, UNEP.

Key features

1. Equal access ~~of~~ to resources in a nature conducive manner.

2. Rights of locals and knowledge as local intellectual property thus needs benefit sharing of any potential commercial benefit from

Role in sustainability

a) Allow R&D and sustainable use of biodiversity without giving undue access to outsiders or locals.

b) Ensure that locals get due recognition for their contribution

Don't write anything this margin (इस भाग में कुछ ना लिखें)

resource of region

(3) Local record keeping of biodiversity by surveys and help of locals. (India-specific NBA 2002)

(3) Helps in estimating extent of biodiversity and hence its preservation

(4) Use/Access of resource only for productive purposes. eg. medicines, research and in amount without harming biodiversity

(4) In line with Brundland report of using resources without hampering future generation capacity to use the same.

Mechanisms

Global → (1) Convention of Biodiversity

↓

Nagoya Protocol (CBD-10)

↓

Part of annual CBD assesment.

(2) NGO initiatives like WWF - ~~fork to~~ sea to fork etc.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

National initiatives

National Biodiversity Act 2002

Institutions → National Biodiversity Authority

→ state Biodiverty Board

→ Local commite

Rules : (1) Access needs NBA permission

(2) Sharing to be decided before export of resource out of country

(3) Local involvement

As, it is said : "We belong to the earth, the earth doesnot belong to us". In view of ongoing 6th mass extinction as highlighted in Global Biodiversity report of WWF, it becomes key to implement Access and Benefit Sharing

Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. Stating the significance, discuss the challenges in achieving disaster resilience of infrastructure. Suggest some ways for mainstreaming it in the development paradigm. **(250 words) 15**

अवसंरचनाओं का आपदाओं के प्रति सुनम्य (रेजिलिएंट) होने के महत्व को स्पष्ट करते हुए, इससे संबंधित चुनौतियों की चर्चा कीजिए। इसे विकास प्रतिमान की मुख्यधारा में लाने हेतु कुछ उपाय सुझाइये।

Disaster resilient infrastructure refers to ensuring key infrastructure (roads, buildings, communication) are strong enough to manage/handle disaster.

Significance

- Communication infra key to implement responses recovery
- Infra key to reach people in disaster distress
- Strong infra reduce building back cost.
- Infra provides first line of defense.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

~~Chall~~

Challenges

- State's efforts are limited (eg) Kerala govt. in case of flood
- Lack of awareness among people (eg) Earthquake mapping not known
- Scientific gaps on engineering for resilience
- Cost of Resilient Infra.

Measures to mainstream

1. Disaster education
2. National funding
3. Global support - IMF, UN.
4. Using local leaders as guide.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(B) CSR funding to fund disaster infra.

India must guide disaster resilient infrastructure efforts in spirit of WB's "Build Back Better".

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. Highlighting the significance of data localization for India, discuss various challenges associated with data localization. **(250 words) 15**

भारत के लिए डेटा के स्थानीयकरण के महत्व पर प्रकाश डालते हुए, डेटा के स्थानीयकरण से जुड़ी विभिन्न चुनौतियों की चर्चा कीजिए।

Data localization refer to restricting motion of data ~~out~~ of countries citizens within its national boundaries..

Recent, directive by RBI to provide for data localization for all payment data in India brought the issue to forefront

Significance

Security concerns

(1) Cyber threat control becomes laxed as data is outside boundaries.

(2) Subject to multiple unknown actors affect privacy as remarked by BN Srikrishna committe

Localization helps better control over the above concerns.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Governance

(3) Due to lack of global data sharing agreement, it becomes easier to access citizen data within boundaries.

(4) Tax evasions, profit shifting and other money laundering attempts can be better monitored with localization.

Economic

(5) Data is new oil, projections show India can potentially become 5th largest data centre market by 2050

(6) Data provides great economic insights for future action

Challenges associated

Security

(1) Questions on government handling and capacity

(eg) CERT IN shows 1 cyber attack every 10 minutes in India.

(2) Poor record on privacy in India.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Governance

(3) WTO woes! US has raised it as key deterrent for e-commerce,

(4) Data monitoring, that is leaving borders is additional challenge.

Economic

(5) Startups that depend on free services like AWS / Amazon cloud will lose economic competitiveness

(6) Harming case of doing business in India

Data in the era of Industrial revolution 4.0 is key economic and social asset. India must work towards conclusion of multi-lateral initiative. BRICS under G-20 to establish global framework.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

19. Money Laundering as a socio economic offence is a menace especially for developing countries like India. Comment. What measures have been taken at the domestic and international levels to deal with this menace? **(250 words) 15**

एक सामाजिक आर्थिक अपराध के रूप में धन शोधन विशेषकर भारत जैसे विकासशील देशों के लिए एक खतरा है। टिप्पणी कीजिए। इस खतरे से निपटने हेतु घरेलू और अंतरराष्ट्रीय स्तर पर क्या उपाय किए गए हैं?

Money laundering (ML) refers to conversion of money earned through illegal means to white money generally by using tax havens or legitimate businesses like CSR etc

ML - socio economic offence - a menace

(1) social challenges

↳ Promote organized crime such as human trafficking illegal U/A 23

↳ Drugs trade and terrorism disrupts social harmony and public order - illegal U/A 19(2)

(2) Economic offense / Menance

PMLA 2002 guides its prevention and makes it an offense in India

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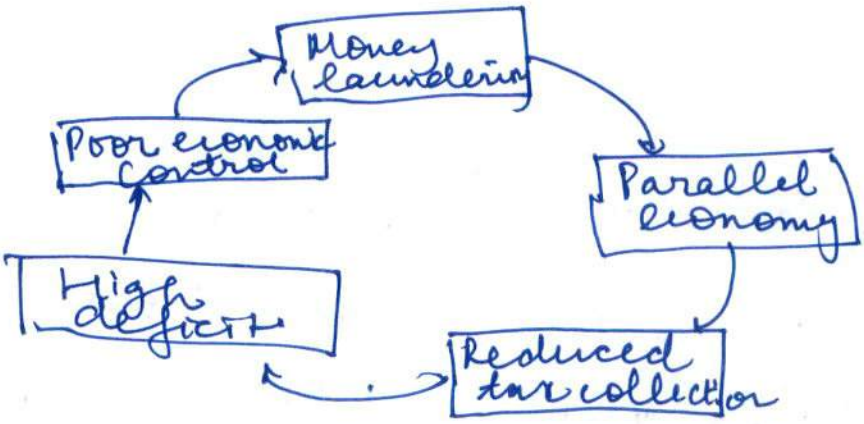
Menace for economy



It also leads to erosion of public trust in economy hence investments FDI, etc. reduce.

It specially affects developing countries as they have crunch resources. ML exacerbates the existing social inequities thus creating a vicious cycle of exploitation.

Measures taken against ML

International
(1) Global legal identifier for tracking evaders

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(2) Extradition & Fugitive offender treaties to cooperate.

(3) Base erosion & Profit shifting under G20 to prevent taxes shifting by digital companies.

(4) GAFIF for global cooperation

· Domestic measures

(4) Implementation of digital initiative

↳ Project Insights : Big data analytics to track frauds

↳ SWIFT : To secure transactions

(5) Powers to ED (Rev. dept.) to enact PMLA 2002 supplemented with Fugitive Offender Act.

(6) Enacting GST

(7) NGO funding / Darpan portal to prevent evasions.

(8) Global treaties (eg. recent Swiss Bank data sharing)

Money laundering needs global collaboration & domestic implementation for effective implementation.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

20. The primary motive of terrorism differs from that of organised crime but there exists a symbiotic relationship between the two. Discuss. **(250 words) 15**

आतंकवाद का प्राथमिक उद्देश्य संगठित अपराध के उद्देश्य से भिन्न होता है, किन्तु दोनों के मध्य एक सहजीवी संबंध पाया जाता है। चर्चा कीजिए।

Interpol defines terrorism as a means to destabilize political Government and replacing it with One's group's own ideology (eg) Taliban in Afghanistan

while in

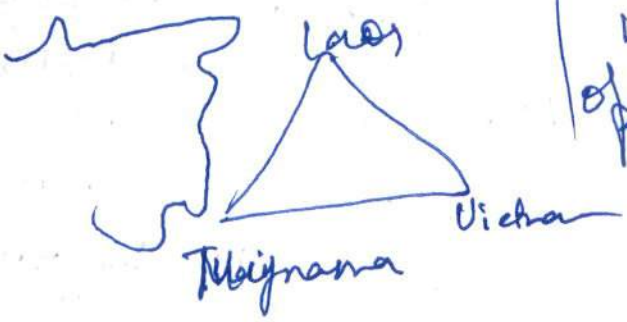
Organized crime key purpose is to make economic profits by illegal and easy means

Primary motive differs as for terrorism its political power and control but for organized crime it is economic benefits

Don't write anything this margin (इस भाग में कुछ ना लिखें)

! Symbiotic relation

Key theatre	! Relation:
(1) North East India & proximity to Drug trade Golden triangle	Drug traders get easy conducts in Insurgents who need money for operations & arms



(2) Kashmir and arms trade	(organized criminals) Arms traders in West Asia get easy targets (terrorist) in Kashmir supported by states actors like Pakistan.
(3) Middle East	The insurgency and human trafficking and

Don't write anything this margin (इस भाग में कुछ ना लिखें)

sexual exploitation as shown by efforts of this years Nobel Peace awardee Nadia Murad

(9) Dawood & Bombay Attacks (1993)

Dawood's key aim was smuggling but his contacts in Dubai and his knowledge of area led to Black friday attacks

There is an increasing blurring of lines between terrorism and organized crime. Thus. global collaborations are key for their tackling.

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GENERAL STUDIES (TEST CODE : 1436)

Name of Candidate	Avadh Singhal		
Medium Eng./Hindi	English	Registration Number	139489
Center	Online	Date	21/08/2019

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
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11	15	
12	15	
13	15	
14	15	
15	15	
16	15	
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18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (यथा, प्रश्न-पत्र कोड, रजिस्ट्रेशन नम्बर आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुखपृष्ठ पर प्रदत्त निर्दिष्ट स्थान पर किया जाना चाहिए। अनिर्दिष्ट माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा जहाँ निर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar Delhi- 110009

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. Given the growing ecological and geopolitical significance, Arctic region offers immense opportunities for serving India's long-term interests. Discuss. (150 words) 10

बढ़ते पारिस्थितिक और भू-राजनीतिक महत्व के आलोक में, आर्कटिक क्षेत्र भारत के दीर्घकालिक हितों की पूर्ति हेतु व्यापक अवसर प्रस्तुत करता है। चर्चा कीजिए।

Recently India was re-elected as observer member of Arctic council - a body of artic bordering nations working for inter-governmental coordination in arctic region due to its growing significance.

Opportunities for India

1. As per US and Russian estimates arctic has 30% of undiscovered natural gas reserves and 13% oil reserves

2. Melting of global polar ice due to warming opens up new sea routes for trade

3. Pristine biome to understand ice mass balance in view of himalayan ecosystem

Don't write anything in this margin (since area is reqd for binding)

(4) UN recently demarcated 70E as global piracy hotspot thus new route remains of great concern for India

(5) Important for India-Russia defence ties (eg) Sakhalin field exploration

While it presents immense opportunities few concerns remains to be tackled-

a) Increase in private investments needed in Arctic

b) Better position India in Arctic Council to safeguard its trade interests

c) Global warming related ice-melting needs to be still curbed

d) Technology for polar ice transport

Arctic in recent times has gained prominence in view of changing geo-climatic conditions. India must ensure its relevance in new geo political setup around it.

Don't write anything this margin (इस भाग में कुछ न लिखें)

2. Discuss the challenges that India may face in the eventuality of withdrawal of US troops from Afghanistan. What options does India have to safeguard its interests in the context of the changing situation? (150 words) 10

अफगानिस्तान से अमेरिकी सैनिकों की वापसी की स्थिति में भारत के समक्ष आ सकने वाली चुनौतियों पर चर्चा कीजिए। परिवर्तित होती परिस्थितियों के संदर्भ में भारत के पास अपने हितों की रक्षा करने के लिए कौन-से विकल्प हैं?

US president in recent past has shown his keenness of troops withdrawal from Afghanistan - Taliban terror - electra due to increasing public pressure on ~~the~~ conclusion of 18 years drawn war

Challenges for India

(1) Impact on peace process and its effect on already volatile Kashmir situations

(2) Indian investments in region
(eg) Zaranj Delaram highway.

(3) Fall of democratic regime and loss of Indian say in process.

(4) Resurgence of Taliban and its fall-out with Indian government.

Don't write anything this margin (area meant for examiner use only)

(5) Indian energy security might be affected as situations become volatile in western Asia due to spillover.

(6) Refugee-crisis similar to Syria and India on receiving end due to its proximity.

Options for India

(1) SCO to hold high-level discussions with US to avoid creation of political vacuum in Afghanistan

(2) Informal-talks using special envoys with Taliban to have a say in post withdrawal process

(3) Working with like minded countries eg. China, Russia to develop/protect democratic process

(4) Continuing soft support - education, ITEC etc

Afghanistan is key for India's security and connectivity concerns and India must ensure it join the bandwagon of global talks before its too late.

Don't write anything this margin (इस भाग में कुछ न लिखें)

3. The BRICS as a grouping seems to have internal contradictions, which makes it difficult for it to emerge as an effective forum in a dynamic multi-polar international order. Critically discuss. (150 words) 10

एक समूह के रूप में ब्रिक्स (BRICS) में आंतरिक विरोधाभास विद्यमान प्रतीत होते हैं, जो गतिशील बहु-ध्रुवीय अंतर्राष्ट्रीय व्यवस्था में इसके एक प्रभावी मंच के रूप में उभरने को कठिन बनाता है। समालोचनात्मक चर्चा कीजिए।

BRICS is an inter-governmental grouping comprizing of Brazil, Russia, India, China, South Africa.

Internal contradictions

(1) Differences in member countries.
(Eg) India-China on Asian leadership of global south

(2) Limited funding in comparison to IMF and World Bank. (~84 Bn total fund)

(3) Overburgeoning Chinese power and its other initiatives like BRI, SCO in priority over it

(4) Lack of any key initiatives for developing it an institutional framework.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(5) Difference in global affiliations
eg. Brazil with US while china Russia against US

Why is it still relevant

(1) It has 5 key economies spanning 4 continents
(2) It has potential to become voice of global south
(3) Industrial Revolution 4.0 needs recalibration of economic strategy as observed in recent summit.

Member countries must try to harness full potential of BRICS with international collaboration

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4. Despite India having immense soft power potential, it alone will not be sufficient to achieve India's foreign policy objectives. Examine. (150 words) 10

भारत के पास अत्यधिक मृदु शक्ति (सॉफ्ट पॉवर) क्षमता होने के बावजूद, केवल यह भारत की विदेश नीति के उद्देश्यों की प्राप्ति हेतु पर्याप्त नहीं होगी। परीक्षण कीजिए।

Soft power refers to use of cultural and unilateral ~~econ~~ socio economic initiatives for conducting international relations.

India's soft power potential

1. Increased humanitarian funding has been recognized by Aid Data rising India's rank to 24

2. Stance in Afghanistan against soldiers on land and contributing ~~to~~ 2b+ development Aid.

3. ITEC – 70+ years of development experience worth learning

4. Rich cultural diversity and shared history
↳ Relevant for both look west and act east policy

Don't write anything this margin (space area is open for final)

(5) Indian universities ~~are~~ provide valuable and cheap education opportunities eg. Maldives, Afghanistan.

[Not sufficient]

(1) Increasing chinese dominances and its reliance of major financial support thrug BRI

(2) Hostile neighbourhood (eg) Pakistan with nuclear capability

(3) Increasing protectionism and need to take aggressive political stance.

(4) Rise of non-state actors eg Taliban, Al Qaeda, ISIS etc.

Thus India needs to continue its balancing act of soft power and hard power to conduct its foreign policy

Don't write anything this margin (इस भाग में कुछ न लिखें)

5. Highlighting the role of space technology in border management, enumerate the steps taken so far in this regard. (150 words) 10

सीमा प्रबंधन में अंतरिक्ष प्रौद्योगिकी की भूमिका पर प्रकाश डालते हुए, इस संबंध में अब तक उठाए गए कदमों को सूचीबद्ध कीजिए।

Space technology refers to use of space for enhacing capabilities on ground. Recently, India has taken multiple measures to increase its role.

(1) GSAT - 7A

↳ Used by Air force and army to monitor borders and infilteration

(2) NAVIC

→ Regional navigation system facilitating information reach to border areas about

(3) EMISAT

→ Helping decipher any hostile monitoring activity on borders.

Don't write anything this margin (space area & upper or break)

(4) Comprehensive Integrate Border Managment

→ Use of sensor which use both optical fibers and satellite communication for sending info on borders.

(5) Space warfare (Shakti)

→ In case of Hostile attack through airspace, missiles can be used for protecting its borders in space (vertically)

Thus, space technology has immense potential in improving India's capability in border management.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

6. Despite allegations of human rights violations under the AFSPA, it is a functional requirement for the army in disturbed areas. Critically discuss. (150 words) 10

AFSPA के अंतर्गत मानवाधिकारों के उल्लंघन के आरोपों के बावजूद, यह अशांत क्षेत्रों में सेना के लिए एक कार्यात्मक आवश्यकता है। समालोचनात्मक चर्चा कीजिए।

Armed forces special protection Act was enacted in 1958 to give special powers to armed forces to bring normalcy in disturbed areas.

Key features

1) Shoot anyone after waring
2) Stop and search vehicles
3) Arrest without warrant
4) Legal Immunity for actions of armed forces

Allegations of human rights violation

(1) Sexual harassment - Justice Verma Committee
(eg) Kunan rape case.

(2) Misuse of violence against innocent civilians.

(3) Abrogation of people's fundamental rights - supreme Court.

Functional requirement

1. Key for ensuring fearless and effective action against disturbance.

2. Unequal wars where insurgents don't follow norms

3. Many locals give shelter to anti-national groups (eg. NCSN in Nagaland)

4. Important for morale of armed forces

Way forward

1. SC guidlines on SOP that ensure balance of action and rights

2. Transparency measures (eg. Online display of court martial results of alleged personnel)

3. Ensuring state police support is available.

Armed Forces Special Protection Act makes an important factor for force effectiveness, thus dilution is not advisable but SC guidlines must be followed in letter and spirit.

Don't write anything this margin (इस भाग में कुछ न लिखें)

7. The use of internet creates both challenges and opportunities in the fight against terrorism. Discuss. (150 words) 10

आतंकवाद के विरुद्ध लड़ाई में इंटरनेट का उपयोग चुनौतियां और अवसर दोनों सृजित करता है। चर्चा कीजिए।

As Martin luther has said we have guided missiles and misguided men. highlighting the boon and bane that any technology is. Internet also shows similar characteristics.

Security

1) Terror propogandizing
eg. ISIS recruitment

2) Live telecast of christ church crime shows potential of hate crime

Social

3) Muzzafarnagar riots shows the potential to create social disharmony

4) which can snowball into internal terrorism

Internet as challenge

a Difficult to track

1) eg. Shamiwitness Twitter handle due to intelligence shortfall

2) Technological gaps
eg. VOIP used during 26/11 not tracked by police

Opportunities

1. Using the same medium to de radicalize
2. If intelligence is strong dead of terrorists can be tracked.
3. Spreading to awareness and education videos.
4. Swift coordination among teams
5. Big data analytics to detect the anti-national elements

Thus internet is both bane and boon India must ensure ~~its~~ that we harness its full potential.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. Explain the concept of Chandrasekhar Limit and highlight its significance in the field of astronomy (150 words) 10

चंद्रशेखर सीमा की अवधारणा की व्याख्या कीजिए और खगोल विज्ञान के क्षेत्र में इसके महत्व पर प्रकाश डालिए।

Chandrasekhar limit was discovered by Indian scientist Subramanium Chandrashekhar and he won Nobel Prize in physics for same.

Concept

It basically demarcates the mass boundary of a star to convert into other bodies like neutron star etc.

2 case

$M_1 > 1.4 M_S$ → Neutron Star → Directly explained by Chandrashekhar limit

$M > 3 M_S$ → Black hole → Inferred from Chandrashekhar limit

$M \rightarrow$ (Mass of star) $M_S \rightarrow$ Mass of Sun

Don't write anything this margin (space area is meant for binding)

Significance in field of astronomy

1. Helps in understanding evolution of various stars in galaxies.
2. Helps estimate the life process of sun and its lifetime.
3. It also seconded the concept of Einstein's black hole
4. Significant as Duly the second Indian born scientist and first astrophysicist to world to get Nobel prize.
5. Continues to help understand spectra received from far-off galaxies

Chandrashekhar limit is a key astrophysics discovery and a proud worthy discovery for India.

Don't write anything this margin (इस भाग में कुछ न लिखें)

9. Examining the risk posed by space debris, suggest some measures which can be taken for its mitigation and removal. (150 words) 10

अंतरिक्ष में मनवे द्वारा उत्पन्न जोखिम का परीक्षण करते हुए, इनके शमन एवं हटाने हेतु कुछ उपायों का सुझाव दीजिए।

Space debris refer to unwanted material orbiting the earth that is either natural (eg. meteorites) or remains of discarded artificial satellites.

Risks posed by space debris

(1) As per NASA, space currently has 5 lakh debris >1 inch size that can harm 780 critical satellites

(2) Increase the cost of satellite and space projects as maneuvering becomes difficult in crowded space orbits

(3) As per some global estimates, Cube sats (small, inexpensive) satellites are going to increase by 50% in next 10 years. further blocking communication avenues

(4) Debris collision can hamper the critical information infrastructure bringing economy to halt.

Measures that can be taken

(1) Increase in global debris removal projects
(eg) C. deorbit, Renovo debris sticking
→ Space harpoon → Capture large satellite
→ Cube sat net capture
→ Atmospheric reentry destruction

(2) Kessler syndrome → self sustaining collision for destruction

(3) Tracking and information sharing on debris.

(4) Control on increase space weaponization by concluding UN - PAROS

Space is becoming a key geo-politics arena due to increased ICT and space weaponization. Global collaboration is key step forward

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10. Discuss the challenges confronting higher self-reliance and indigenisation of defence industry in India. What steps can be taken to accelerate its pace? (150 words) 10

भारत में रक्षा उद्योग के समक्ष उच्च आत्म-निर्भरता और स्वदेशीकरण से संबद्ध चुनौतियों की विवेचना कीजिए। इसकी गति को तीव्र करने हेतु क्या कदम उठाए जा सकते हैं?

India imports ~70% of its defense requirement thus highlighting its huge dependence of external players.

Challenges

(1) Technological

→ R&D spending at 0.7%.

→ Technology transfer is not used properly

Governance

→ DRDO's poor performance.

→ High PSU thrust

→ Trust deficit with private sector

Contractual fadacies

↳ Lack of transparency mars growth

↳ Long gestation period increases cost and hence budget for Innovation

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Steps to be taken

(1) Promoting innovation in defense.
- Boost to Raksha gyaan shakti
- More thrust on private sector production through P&P & strategic partnership mode
- Focus on including technology transfer clauses

(2) Improving governance
- DRDO's accountability by PMO focus
- Transparency measures to improve execution of contracts

(3) Overhaul Defence procurement procedure in line with Dhirendra Singh Committee.

India assuming role of net security provider in IOR mandates itself sufficiency in defense technology. India must ensure technological and governance reforms to ensure swift action.

Don't write anything this margin (इस भाग में कुछ न लिखें)

11. Comment on the role played by the diaspora in India's development process. Also, discuss the challenges in terms of engaging the Indian diaspora and suggest ways to translate these partnerships into benefits. (250 words) 15

भारत की विकास प्रक्रिया में प्रवासी समुदाय (डायस्पोरा) द्वारा निभाई गई भूमिका पर टिप्पणी कीजिए। साथ ही, भारतीय प्रवासी समुदाय को आकर्षित करने में आने वाली चुनौतियों पर चर्चा कीजिए तथा इन साझेदारियों को लाभों में बदलने हेतु तरीके सुझाइए।

Diaspora refers to countries national/ related persons living abroad. India has - 11Mn diaspora living in foreign countries.

Role played in development

① Bringing investments in countries (FDI) FPI)

② Remittances | India received ~80Bn (eighty) in 2018)

③ They bring best practices in development sector
(eg) Microsoft AP govt. enrollment project - Satya Nadella.

④ help in political lobying to ensure funding to India
(eg) US senators.

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(3) Cause of Indians in foreign countries (eg) US Visa regime

[Challenges in engaging Diaspora]

(1) Poor visa regimes eg. PIO cards are difficult to get

(2) Establishing ~~lanes~~ channels of ~~neto~~ communication

(3) Data on diaspora is missing with MEA

(4) India's funding to external nations remains limited

(5) Ease of doing business also hampers their engagement in economy

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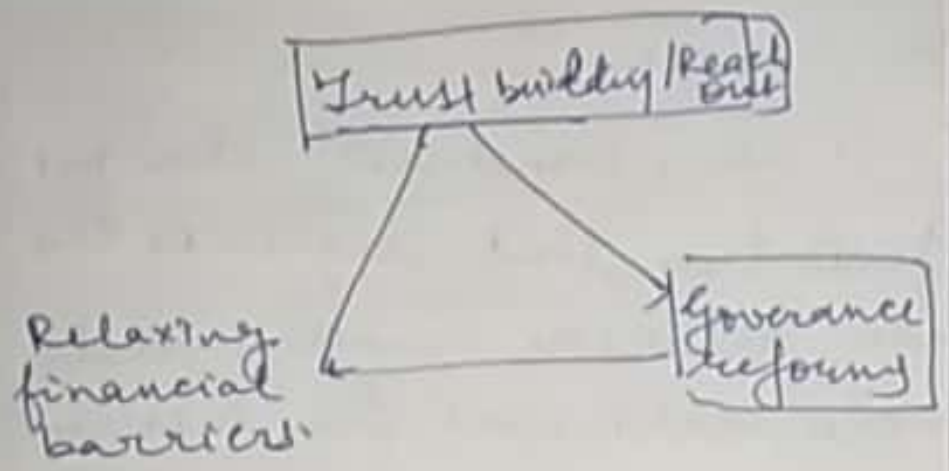
Thus a multi-pronged approach is needed



Diaspora in this globalized world becomes key for India to put toward its global footprint, concerted efforts are needed

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12. Highlight the reasons behind proliferation of multilateral preferential trade agreements. Do they violate WTO's MFN principle? Do you think that such trade groupings present an existential threat to WTO? (250 words) 15

बहुपक्षीय अधिमान्य व्यापार समझौतों के तीव्र वृद्धि के पीछे निहित कारणों पर प्रकाश डालिए। क्या वे WTO के MFN सिद्धांत का उल्लंघन करते हैं? क्या आपको ऐसा प्रतीत होता है कि इस प्रकार के व्यापार समूह, WTO के समक्ष अस्तित्वपरक खतरा प्रस्तुत करते हैं?

WTO is the international inter-govt. organization that regulates the trade between countries and provide mechanisms for ensuring fair and open trade.

Increase in multi-lateral PTAs

(1) Increase in protectionism
(eg). US- tariff policy
EU - brexit and changing order.

(2) Failure of WTO to conclude Doha development agenda.

(3) Rise in regionalism trade (eg. Africa union FTA, RCEP etc highlighting declining trust

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(4) Dispute resolution mechanism in WTO is seen as favouring developed countries not taking into ~~(eg) solar~~ hand needs of developing countries (eg) solar domestic content requirement case - India-US

(5) Consensus based decision making hampers (WTO - US) approach if needed.

Does it violate WTO's MFN principle

MFN / Most favored principle refers to preferential treatment is not allowed for a particular country and if barriers are laxed, it needs to be done for all trade partners.

It is not in violation but are allowed exception and regional integration boost avenue for global trade and promote integration of markets reducing inefficiency

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[Existential threat to WTO]

In favor	Against
→ Against rule-based order	→ Not if these grouping are used as stepping stone for global integration
→ Legitimacy and utility of WTO declines	→ Grouping like ASEAN, EU have resulted in enhanced global trade
→ Harms the one vote equality principle.	→

→ Thus it becomes an existential threat if the multi-lateral trade becomes the only norm of trade.

There is an urgent need for like minded country (India, Japan, Australia) to collaborate with G-77 and other players to ensure rule-based WTO regime is re-established.

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13. India needs to balance its growing water needs and larger security concerns with effective hydro-diplomacy. Highlighting the challenges faced with regard to transboundary rivers, analyze this statement in the context of India's riparian relations with its neighbours. (250 words) 15

भारत को अपनी बढ़ती जल आवश्यकताओं और व्यापक सुरक्षा चिंताओं को प्रभावी जल-कूटनीति के माध्यम से संतुलित करने की आवश्यकता है। सीमा पारीय नदियों से संबंधित सामना की जाने वाली चुनौतियों पर प्रकाश डालते हुए, अपने पड़ोसियों के साथ भारत के नदी-जल संबंधों के संदर्भ में इस कथन का विश्लेषण कीजिए।

India is a water stressed country (~1100 ppm) water as per CWC data. With increasing extreme climatic conditions, Hindu kush Assesment report predicts that 2/3rd of Himalaya ice will melt by 2050 making water crisis a key challenge for India.

General survey of transboundary rivers

Challenges with trans boundary rivers

(1) India - Pakistan - Indus

The water sharing is guided by Indus water treaty of 1960 which provides 80% water to pakistan

Many argue the deal is too balanced in pakistan's favor and requires renegotiation.

Pakistan's unfounded objections on run-off river projects also ~~dam~~ harm India's capacity to store and harness water (eg. Kishenganga) thus also highlighting key challenge.

Thus in wake of water stress in India, Indus water treaty requires renegotiation.

(2) India - Bangladesh

Teesta - water sharing agreement is pending due to west bengal's CM objections. This hampers conclusion

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of Indo-Bangladesh connectivity project which is a key security concern as India is overdependent on Chicken neck.

Thus India needs to actively conclude both of above agreements

(3) China - Brahmputra

Reports of large scale river inter linking project on Tibet rivers making water availability to North-East region a concern

Also, there are reports of geo-engineering experiments that can inflict artifical floods

India thus needs to works with other lower riparian like Bhutan & Bangladesh to negotiative water-sharing treaty with China.

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14. Commenting on the importance of Central Asia for India, highlight the progress made in the relationship in recent past along with the issues that still remain to further cement the ties. (250 words) 15

भारत के लिए मध्य एशिया के महत्व पर टिप्पणी करते हुए, हाल के दिनों में संबंधों में हुई प्रगति पर प्रकाश डालिए, साथ ही साथ ऐसे मुद्दों का उल्लेख कीजिए जिन पर संबंधों को और अधिक सुदृढ़ करने हेतु ध्यान दिया जाना अभी भी शेष है।

India unveiled ~~Indi~~ its central Asia (CAR) policy in 2012 to strengthen economic, security and cultural ties with region.

Importance of region

Economic :

① Energy resources
↳ Uzbekistan - Uranium
↳ Turkmenistan - 4th largest gas reserves.

② Metals - ~~Tajikistan~~ Kyrgystan has huge gold reserves

② Also provide Key market for Indian products (eg. pharma, automobile)

security convergence

① Convergence on west Asian + Afghanistan terror situation (eg. ISIS, Al Qaeda)

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(5) Similar concerns on drug trade in golden crescent.

Strategic Importance

(6) Gateway to Europe from Asia.

(7) Key in countering China's increasing presence. through BRI, ORDB.

Steps taken in recent past

(1) Ministerial level meets to strengthen strategic partnership.

(2) Connectivity measures

(eg) INSTC connecting westcoast to Bandar Abaz to EAR

Zaranj delarm if extended give access to Uzbekistan

(3) Talks on FTA with Eurasian Economic council underway.

(4) Soft power interaction → PIEC training, scholarship for students

(5) Military exercises (eg) Nomadic elephant

(6) becoming member of SCO

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Issues that remain

1. Need to enhance and complete connectivity in wake of US-Iran sanctions.
2. Trade at ~ 2BN vs ~ 50Bn CAK trade with China.
3. Need to curb radicalization of youth in region to increase its market relevance
4. India's private sector investment to be boosted.
5. Increased engagement at high-level beyond SCO.
6. Boost to tourism

India adopted a late Central Asia policy due to its pre-occupation with West Asia and East Asia. The new geo-political order and India's dream of $5 Tr economy necessitates its involvement in region.

Don't write anything this margin (इस भाग में कुछ न लिखें)

15. Discuss the significance of India's island territories in its quest to become a net security provider in the Indian Ocean region. (250 words) 15

हिंद महासागर क्षेत्र में वास्तविक सुरक्षा प्रदाता बनने की भारत की आकांक्षा के आलोक में, इसके द्वीपीय प्रदेशों के महत्व की चर्चा कीजिए।

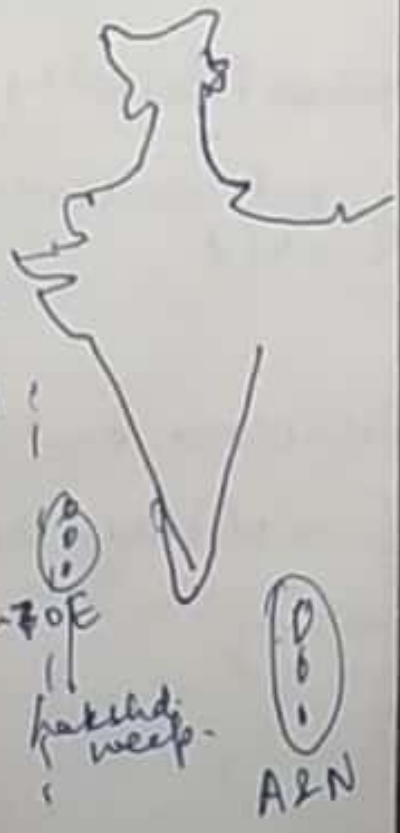
As it is said, that with increasing ~~responsi~~ power, responsibility increase. In this light of India's economic prowess India has assumed the role of net ~~ent~~ security provider in Indian ocean region through initiatives like SAGAR, IORA etc.

Defining Net Security provider

4 components

→ Capacity building
→ Military diplomacy
→ Military assistance
→ Military deployment

The figure shows India's 2 Key Island UTs.



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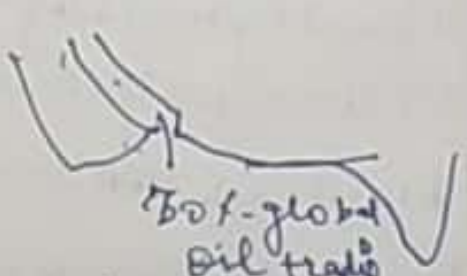
Significance of both islands

A Lakshadweep

1. Countering Piracy as Lakshadweep located around 70E which is global piracy hotline.

2. Terrorism : ISIS presence in Maldives and region in general requires collaboration ~~and~~

3. ~~Pla~~ Proximity to Hormuz Strait
Key oil artery of world.



4. African India collaboration of military exercises, intelligence sharing.

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b Andaman & Nicobar island

(5) Countering Chinese assertiveness by presence of Tri-service command ~~on~~ an effective deterrence.

(6) Proximity to ~~Stall~~ Straits of Mallaca - key global trade route

(7) 9 degree channel as effective route to provide alternative to mallaca using Malay peninsula as transit

(8) Proximity to QUAD countries indo-Pacific.

(9) Counter to golden triangle

Thus both islands ~~nation~~ help India provide security against terrorism & piracy, global assertiveness while ~~pro~~ securing sea lanes.

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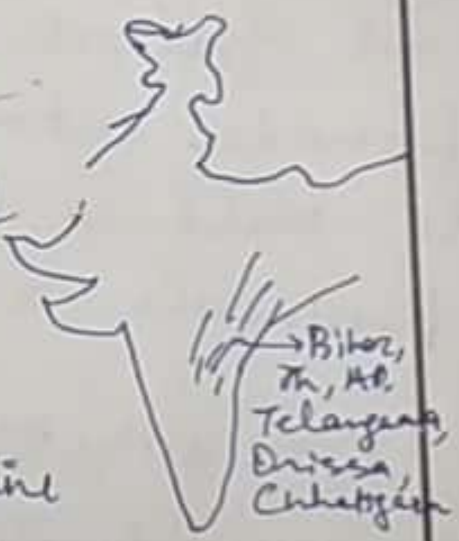
16. A fine balance between security and developmental measures needs to be attained for tackling the menace of Left Wing Extremism (LWE) in India. Analyse. (250 words) 15

भारत में वामपंथी उग्रवाद (LWE) के खतरे से निपटने हेतु सुरक्षा और विकासात्मक उपायों के मध्य एक उत्कृष्ट संतुलन स्थापित करने की आवश्यकता है। विश्लेषण कीजिए।

Left wing extremism (LWE) refers to an revolutionary attempt to overthrow political setup for perceived social equity objectives

India - LWE

The figure shows red corridor which is key LWE affected area. (90 districts)



To understand the fine balance of need of security and development we need to understand reasons behind its spread.

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Land distribution

1. 86% farmers are small & marginal (<2 ha) & many landless
2. Sch 5, 6 provisions not met well
3. e.g. recent 50% eviction under FRA

Livelihood

3. PDS most inefficient in tribal area - Shanta Kumar
4. Education/literacy 53% vs 74% national in case of tribals
5. PRA removes their tribal collection rights

Reasons.

Revolutionary path to justice

6. Instead of political process some Maoist philosophy people instigate gullible locals
7. Lack of police capacity makes it further easy for propaganda to spread
8. Nexus of illegal miners

Thus, it shows that both root causes (lack of development) and its effects (naxalism) needs to be tackled)

Steps to be taken

(1) State police upgradation
(Eg) Greyhounds of Andhra

(2) Police infra / capacity
Eg Dantewada incident showed lack of basic infra.

(3) Supply of technology (eg ISRO) enabled vision to give security personnel an edge.

(4) Addressing root cause
A-1 Schools (Eklavya)
A-2 Vocational (Eg Dantewala school)
A-3. Skilling
A-4. Deradicalization
A-5 Ensuring benefits of public schemes reach the poor.

As, it is said "poverty anywhere is threat to prosperity everywhere" thus India must ensure the security and developmental measures are taken to address LWE menace in India.

Don't write anything this margin (इस भाग में कुछ न लिखें)

17. Illustrate the linkages between drug trafficking, organised crime and terrorism. In this regard, mention the steps that have been taken to arrest the availability of drugs in India. (250 words) 15

मादक पदार्थों की तस्करी, संगठित अपराध और आतंकवाद के मध्य संबंधों को उदाहरण प्रस्तुत करते हुए समझाइए। इस संबंध में, भारत में मादक पदार्थों की उपलब्धता पर अंकुश लगाने हेतु उठाए गए कदमों का उल्लेख कीजिए।

Drug trafficking refers to illicit sale of ~~trade~~ prohibited drugs eg. Cocaine, marijuana etc.

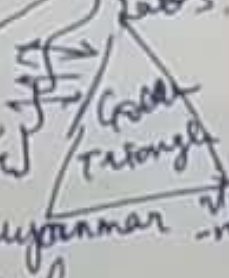
Organized crime refers to corporate type structure that aims to make money out of illegal activities (INTERPOL)

Terrorism is attempt to overthrow political setup by violence.

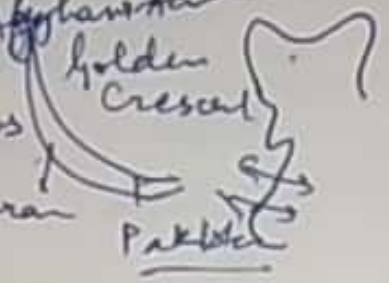
There exists linkage between the 3

(1) North - East India

The insurgent groups like NCSN, ULFA acts as courier for drug trafficking for financial gains.



(2) Punjab Border



MHA report shows that the drug trafficking route became key reason for Pathankot Airbase attack

(3) J&K :

Here organized crime is in form of arms trade and fuel secessionist movement

(4) Mumbai

Dawood Ibrahim Illegal smuggling gave way for Bombay attacks (1993) & were also involved in 26/11 attack

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Steps by India

(1) Narcotics Drugs and Psychotropic Substances Act 2015
→ 10 yrs punishment
→ Life sentence/Death sentence for repeat crimes
→ Provide for rehabilitation in case of addicts

(2) National Plan for Drug Control by Ministry of Social Justice

(3) Vienna convention & Palermo convention of UNODC have been ratified by India

(4) Coordination with Myanmar & Iran.

(5) SCO membership.

Drug-trafficking & terrorism nexus needs international collaboration and effective law implementation for redressal.

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18. Identify the key threats to national security in the wake of climate change. Also, highlight India's stand and rationale on UN's decision to declare climate change as an international security issue. (250 words) 15

जलवायु परिवर्तन के आलोक में राष्ट्रीय सुरक्षा के सम्मुख प्रमुख खतरों की पहचान कीजिए। साथ ही, जलवायु परिवर्तन को एक अंतर्राष्ट्रीय सुरक्षा मुद्दा घोषित करने के संयुक्त राष्ट्र के निर्णय पर भारत के दृष्टिकोण और औचित्य पर भी प्रकाश डालिए।

Climate change refers to longterm variation in climatic condition like rainfall, temperature over a region

Key threats to National security

(1) Water crisis - Hindukush Assem report 2/3 glaciers to be melted by 2050

(2) Food security (eg) recent Maharashtra draught

(3) Movement of people and related unrest.
↳ Migration related challenge
(eg) WB report show around 60 Cr people living in hotspots

(4) Loss of livelihood (eg) Arab Spring show livelihood loss can trigger civil war

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(5) Food price volatility → Inflation and economy collapse.

India's stance on UNSC call

UNSC under Art 39 of UN charter decided to make climate change an international security threat but India has opposed this move

Rationale

1) UNSC is dominated by P5 and thus not inclusive

2) Early / hasty announcement without thorough consultation

3) UNFCCC's more inclusive and respect the principle of common but differentiated responsibility

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(4) UNSC failure to address the existing issue

(5) Against the right of self determinism of countries

India's stance is justified but climate does have potential to become a security threat and thus global efforts need to be expedited to curb it.

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19. Explaining the concept of data exclusivity, bring out the arguments for and against incorporating data exclusivity norms in India's IPR regime. (250 words) 15

डेटा एक्सक्लूसिविटी (डेटा विशिष्टता) की अवधारणा की व्याख्या करते हुए, भारत की IPR व्यवस्था में डेटा एक्सक्लूसिविटी संबंधी मानदंडों को सम्मिलित करने के पक्ष और विपक्ष में तर्क प्रस्तुत कीजिए।

Data exclusivity refers to policy of access of data to only the patent / IP holder

Argument For

1. Improves case of doing business
2. Address concern of developed countries
3. use as leverage for other demands at WTO
4. IPR regime will progress, current WIPO index ranking at ~50 only
5. Boost to RnD External funding currently at 0.7% vs 2-3% of GDP in China

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Arguments against

(1) Hinders domestic research
(eg) Trial data being not available for generic drugs.

(2) Health concerns of India, increase in cost of drug development

(3) India is already WTO-TRIPS compliant.

(4) Data of a country is right of its citizens

(5) Data is new oil in digital and IR 4.0 age

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Thus any reforms need proper public debate before implementation

20. Compare and contrast fifth generation (5G) of wireless telecom technology with 4G technology. What challenges need to be overcome for 5G's pan-India rollout? (250 words) 15

4G प्रौद्योगिकी के साथ पाँचवीं पीढ़ी (5G) की वायरलेस दूरसंचार तकनीक की तुलना कीजिए और उनके मध्य अंतर बताइए। 5G के अखिल भारतीय क्रियान्वयन हेतु किन चुनौतियों से निपटने की आवश्यकता है?

5G is fifth generation ICT technology which uses radio frequency to enable transfer of terabytes of data in few seconds.

Comparison of 5G/4G

	5G	4G
Spectrum band	30GHz >	3GHz
Latency (time lags)	<1ms	~10ms.
Peak speeds	20Gb/s	1-2GB/s
Traffic density without speed hampering	1000	100 people

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Ministry of Electronics and Information technology recently rolled out bids for 5G spectrum sale but the response remained lukewarm highlighting following challenges

Economic Challenges

(1) Two of three major telecom players (Voda-Idea, Airtel) have highlighted that reserve prices are 20-30% higher

(2) As per ICRA, the telecom industry has a 7.3 Lakh Cr debt due to Jio competition

(3) Around 5 Lakh Cr investments are needed to upgrade infrastructure backhaul (currently only 20% optical fibres available.

(4) Industry concerns of customer readiness

Governance issues

(7) US-China trade wars make it difficult for India to choose players like Huawei.

(8) Huge Rural-urban digital divide (eg Eco survey highlight 1.5 teledensity in urban while 0.5 in rural) gives rise to inclusivity concerns

(9) ITU's cyber security index has degraded India to 47 highlight the security challenges.

(10) Concerns on fair bidding process have also been raised to avoid 2G spectrum scam kind of scenario.

5G is a key technological advancement that can help India cut-down inefficiencies of 3G/4G but process must be streamlined before rolling out to ensure success